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ABSTRACT

How institutional research can improve the quality of institutional performance of colleges and universities in the face of funding constraints is discussed. An example of the use of instructional research to assist in documenting institutional quality in Australia is noted. Institutional research uses data collection, analysis, and interpretation to support planning, management, and decisionmaking. Strategies to improve the quality of outcomes and/or processes during times of limited resources are grouped under the following headings: environmental scanning and reassessing the appropriateness of mission and goals, concentrating resources on selected core activities and processes, phasing out activities seen as weak or peripheral to the institution's mission, improving management and decisionmaking processes, streamlining administrative procedures, enhancing communication and coordination, simplifying organizational structures, developing cooperative and collaborative arrangements for joint programs and shared resource use, and implementing more effective monitoring and review processes. As illustration, it is noted that institutional research is assisting Australian universities to document their achievement of quality for the Committee for Quality Assurance in Higher Education through a 3-year (1993-95) quality review cycle. (SW)

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Achieving Quality Within Funding Constraints: The Potential Contribution Of Institutional Research

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Abstract

Escalating demands on limited public funds have made governments increasingly concerned with the effective and efficient use of resources in achieving desired outcomes, and with quality management as a public accountability mechanism. For tertiary education institutions, the management of quality within funding constraints is now imperative. This paper reviews strategies for improving the quality of institutional performance in the face of funding constraints. It outlines how institutional research can improve the effectiveness of particular strategies through its core processes of data collection, analysis and interpretation which serve to inform planning, management and decision-making. It refers particularly to how institutional research is assisting Australian universities to document their achievement of quality for the Committee for Quality Assurance in Higher Education.



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**Jean Endo
Editor
AIR Forum Publications**

CONTEXT

Introduction

This paper looks at how *institutional research* can contribute to the improvement of tertiary education outcomes and the quality of institutional performance, in the face of constrained resources. Its approach involves a discursive review, set within the context of the "quality" challenge now confronting Australian tertiary education institutions. It focuses on generic examples to illustrate particular points, rather than case studies of specific activities or projects at individual institutions. The final section refers to the Quality Review program being implemented over 1993-95 by the Australian government within the nation's higher education sector. Although this program is unique to the Australian higher education environment, the issues involved are of universal concern to tertiary education institutions, government and other stakeholders throughout Australia, New Zealand, and many other countries.

"Quality", Institutional Planning and Management, and Institutional Research: A Broad Perspective on their Inter-Relationships

For the purpose of this paper, "quality" is viewed essentially in terms of "fitness for purpose", and quality of performance will be defined primarily in terms of outcomes consistent with achievement of stated mission and goals.

In adopting such a perspective, it is important to recognise that quality of outcomes needs to be assessed within the context of the processes through which these outcomes are achieved. "Quality" in the fullest sense requires not only good performance, but also evidence that this performance is planned or intended, rather than merely accidental or fortuitous. That is, there should be a clear and demonstrated link between the quality of outcomes and the planning processes for achieving and replicating these outcomes. Because of the above, quality assurance processes are essential to the maintenance and management of quality. However, quality assurance has its own limitations, as it aims merely for replication of an agreed standard

of performance. This standard may represent only minimally adequate outcomes rather than excellence. Total Quality Management goes beyond this, pursuing continuous improvement in the quality of both outcomes and underlying processes.

It is here that the management of quality can be linked to the other dimensions of institutional planning and management, through the framework of strategic planning and management processes. Essentially, one fundamental yardstick by which quality in outcomes (i.e., performance) must be measured, is the extent to which outcomes contribute to the achievement of stated goals and objectives and are consistent with the broader mission and purposes which underlie these goals. In turn, this can be facilitated by a strategic planning process which provides a framework for the improvement of performance. Such a framework will involve the clarification of institutional mission and its relevance, the identification of desired directions of institutional development and of the strategies, goals/objectives, and programs/activities which can most effectively pursue the achievement of institutional mission, and the implementation of an on-going process of monitoring, review and (hopefully) continuous improvement.

Institutional research can play a key support role in such processes. Broadly, *institutional research* is viewed as a range of activities involving the collection, analysis and interpretation of information descriptive of the profile of an institution and its activities, including its students and staff, programs, management and operations. The findings of such *institutional research* can assist institutional leaders and managers (in both academic and administrative domains) through informing their planning and decision making. As an activity which supports institutional planning, management and decision making, *institutional research* has the potential to contribute substantially to the improvement of quality in both program outcomes and the planning and management processes which underlie the selection, development, delivery and support of these programs. Such a role can extend beyond the measurement and evaluation of outcomes using statistical methods, to encompass a diversity of qualitative analyses.

At this point, it is worth noting that "quality" encompasses more than "fitness for purpose" and its complementary dimensions of institutional performance (i.e. outcomes) and processes. Quality also concerns the intrinsic worth or value of the institution's goals and activities, within the context of the contribution made to the community and society as a whole. Without wishing to side-step this aspect of "quality", this paper will do no more than acknowledge that the fundamental purposes of tertiary education, and the primary activities of tertiary education institutions which embrace teaching, research and service to the community, contribute vitally to the social, cultural and cultural development of society in a diversity of ways. Consistent with this perspective, the paper therefore focuses its attention on the quality of performance (and processes) in achieving these institutional purposes.

Finally, it is important to emphasise that quality of outcomes (i.e. performance) involves elements of both effectiveness and efficiency. In other words, performance must be assessed not only in terms of the absolute standard of goal achievement, but also in terms of the extent of the achievement in relation to resources expended. The current environment within which tertiary education institutions must operate is one in which both government and wider community expect improved performance without a commensurate increase in the funding allocated to the tertiary education system. With this in mind, it is worthwhile to explore further the ways in which *institutional research* can assist institutions in improving quality within resource constraints.

INSTITUTIONAL STRATEGIES FOR IMPROVING THE QUALITY OF OUTCOMES IN THE FACE OF FUNDING CONSTRAINTS

Introduction

In seeking to improve the quality of outcomes and/or processes in the face of funding constraints, tertiary education institutions can employ a diverse range of strategies. Often, several of these strategies may be used in combination. The particular selection of strategies

employed, and the balance or emphasis amongst them, will depend not only upon the values and organisational culture embedded in the institution's mission and goals, but also on the perceived strengths and weaknesses of the institution and the dimensions and particular features of the challenges being faced.

At the risk of imposing an arbitrary framework which might constrain one's perspective, it seems worthwhile to categorise these strategies. This can provide a working basis for looking at the ways in which specific *institutional research* activities can contribute to their successful implementation. Thus, for this exercise, strategies are grouped under the following headings:

- environmental scanning and reassessing the appropriateness of mission and goals
- concentrating resources on selected core activities and processes
- phasing out activities seen as weak or peripheral to mission
- improving management and decision making processes
- streamlining administrative procedures
- enhancing communication and co-ordination
- simplifying organisational structures
- developing co-operative and collaborative arrangements for joint programs and shared resource use
- implementing more effective monitoring and review processes.

Environmental Scanning and Reviewing the Appropriateness of Mission and Goals

A common strategy for meeting the challenges of increasing resource constraints is to undertake a fundamental review and reassessment of the overall mission and goals of the

institution (and of particular organisational components). Questions to be addressed may include any or all of the following.

- Is the existing mission appropriate to the needs of the community or particular target group?
- Is this mission achievable within available resources?
- Are there changes, threats or challenges in the operating environment that make pursuit of the mission (or certain dimensions of it) no longer feasible?
- Alternatively, can the institution achieve more through a re-orientation of mission/goals in order to respond to changed circumstances or new opportunities?
- What particular strengths and weaknesses (i.e., areas of performance and outcomes) provide evidence of the extent to which the existing mission and goals are being achieved?
- What is the nature and extent of the shortfall between intended goals and actual performance in particular programs, organisational units, or dimensions of activity?
- Why do these shortfalls exist?

The above questions address various aspects of the broader issue underlying any assessment of "fitness for purpose"; that is, the need to ascertain not only whether the institution is well-positioned in a global sense to achieve its mission, but also whether the mission is relevant to the expectations of the community it serves. Equally, they concern whether the capabilities of the institution are congruent with its desired mission and broad goals.

Institutional research can provide valuable information to assist in responding to all of the above questions. The collection and analysis of information about the strengths and weaknesses of certain program areas (academic, research, service or administrative support), can improve the quality of a SWOT analysis or other assessment of institutional "fitness for purpose". Some types of data and analysis which can be particularly useful include such items as:

- data/analysis on student demand (growth, trends, geographical and other patterns) across program areas
- data/analysis on student quality (e.g., tertiary entrance scores) and other aspects of the student population profile
- data/analysis in relation to student satisfaction/feedback, and graduate outcomes/feedback
- various staffing profile data/analysis (qualifications, age and gender distribution levels of appointment, staff turnover, etc.)
- data/analysis on physical resources
- data/analysis on funding levels and sources
- data/analysis on resource allocation/use
(e.g., student:staff ratios, cost/expenditure analysis)
- comparative data in relation to other institutions on each of the above items.

Concentrating Resources on Selected Core Activities and Processes

Whether or not arising from an overall review/reassessment of mission and goals, a policy of concentrating resources on selected core activities and processes is a strategy frequently adopted by organisations faced with inadequate resources to continue to achieve quality performance across all existing areas of activity. The identification of activities and program areas on which to concentrate can be achieved most effectively if good information is available on the extent to which each one contributes to the achievement of institutional mission and goals, and the quality of this performance (i.e. effectiveness and efficiency in relation to resources used).

Institutional research encompasses a range of data collection and analysis which can present such information, involving both performance indicators and evaluative review, and thereby

facilitate effective decision-making in such an exercise. The following examples are indicative of the input which can be made by *institutional research* in this area of concern.

- Comparative analysis of academic programs along such dimensions as:
 - staff quality
 - student quality
 - student demand
 - demand for graduates
 - academic quality of program
 - levels and efficiency of resource use.
- Analysis of current trends and investigation of likely future shifts in these in relation to quality, relevance, and demand for particular programs.

Phasing Out Activities Seen as Weak or Peripheral to Mission

The converse of concentrating resources on core activities is of course, the phasing out of activities seen as weak or as peripheral to institutional mission. Universities and colleges have traditionally been hesitant to adopt such a course of action due to the value systems of their academic communities as well as their susceptibility to lobbying by stakeholders in the wider community (e.g., professional and employer groups). Nevertheless, they have shown a greater willingness to do so in recent years, in the face of harsh funding realities.

The decision to withdraw from a specific area of activity, especially an academic or research program, has serious consequences and once implemented, is not easily reversible. Thus, it is important that the decision is well-considered and informed. It is here that *institutional research* can assist, by providing information and analysis to ensure the quality of the review and decision-making process. The types of data/analysis relevant to this role are of course, essentially the same as those indicated for supporting the strategies of selecting and concentrating on core activities.

Improving Management and Decision-Making Processes

A critical dimension of the achievement of quality in any area of an organisation's activities, is the quality of its management and decision making. The crucial element in any decision making is in turn, the quality of the process through which decisions are reached, i.e., the extent to which informed decisions are made after careful consideration of the alternatives and their consequences in the light of the information available. In times of constrained resources, the need for considered decisions is heightened, because the financial consequences of an unwise decision are more likely to have an adverse impact.

Institutional research can play a vital role in assembling high quality management information to help ensure that decisions are well-informed. The form of this information is determined by the nature of the issues requiring resolution, and can cover a diversity of types of statistical data and analyses, qualitative review and interpretation concerning students, staff, programs, resources and finance, and other matters.

In addition to the specific role of improving the quality of particular decisions, *institutional research* performs a more general role in supporting the on-going process of managing the operation of both mainstream programs (e.g., teaching, research) and administrative and support activities (e.g., library, staff development, student recruitment). This monitoring and review function, a crucial dimension of all quality assurance and quality management, is highly dependent on collection and analysis of data which can serve as performance indicators. These include not only measures of outcomes (e.g., students recruited or graduated), but also measures of the quality (i.e., effectiveness, efficiency, etc.) of the processes employed (e.g., recruitment strategies, teaching strategies, assessment methods). Careful interpretation and review of findings, a vital ingredient in good *institutional research*, will facilitate the provision of advice which, if acted upon, should lead to improved processes and outcomes - often in association with savings in cost-efficiency and/or cost effectiveness.

Streamlining Administrative Procedures

The streamlining of an institution's administrative procedures, if initiated and implemented in a well-considered fashion, offers considerable scope for improved quality, especially in terms of efficiency of processes. The cost savings in time and resources associated with this improved efficiency, free up these resources for application to other program areas or activities (or alternatively, make it easier to operate within the constraints of available resources).

Institutional research, particularly investigations into institutional processes and the monitoring and analysis of their efficiency and performance, are an essential ingredient to quality management in relation to administrative procedures. Studies of admission and enrolment procedures, of staffing recruitment and other operations, and of financial and facilities management procedures, offer much scope for identifying areas which may need revised practices in order to achieve improved quality.

Enhancing Communication and Co-ordination

Effective communication and co-ordination amongst the various parts of an organisation, especially a relatively large and complex organisation such as a major tertiary education institution, is essential to its efficient operation. Enhancement of communication and co-ordination within the institution, both horizontally amongst organisational units, and vertically through the hierarchy of management levels, thus offers substantial scope for improving the quality of both management and administrative processes, and of program outcomes. The existence of resource constraints places an increased imperative on good communication and co-ordination, as the loss in effectiveness and efficiency of performance due to lost time and failed communication, can be extremely costly in terms of poorly utilised resources.

Strategies for improving communication and co-ordination can often work in conjunction with the streamlining of administrative procedures; their impact is mutually complementary, making management and operations less cumbersome, and improving the capacity of individuals

within the organisation to function effectively with a minimum of barriers and impediments to their performance.

Improvements in communication and co-ordination can also work in combination with improving the organisation's processes for management and decision-making. They often play a major role in increasing the timely flow of relevant information to improve the quality of decision-making.

Institutional research/analysis which reviews and examines how channels of communication are structured within the organisation, which identifies barriers to the smooth flow of communication, and which assesses how well co-ordinated this communication and feedback is across the various organisational units and functional areas that comprise the institution, can provide a systematic basis for improvements to be made. Such analyses may involve interviews and questionnaire surveys, focus groups and informal discussions, even "action research". Alternatively they may involve an approach based on mathematical modelling and simulation. However, whatever the methodology adopted, the collection of institutional data and its analysis provides the starting point for identifying the scope for the improvement of quality in this area of concern.

Simplifying Organisational Structures

It is generally accepted that an organisation's structure should be as simple and non-complex as its requirements for control and co-ordination will allow. There should be a minimum number of levels in the management hierarchy, to achieve as flat as organisational structure as feasible taking into account the complexity of the purposes, range of functions and activities contained within the organisation.

Tertiary education institutions have a tendency to develop complex organisational structures. In part, this is because of the range and diversity of their academic programs and disciplines, which tend to be organised in separate departments or units which operate in relatively independent and uncoordinated fashion. In part, this is also due to the inherent complexity of

the committee systems which accompany the collegial decision making which is the hall mark of the academic community. These features have led to universities in particular being referred to as "organised anarchies", "loosely-coupled systems", and even "garbage cans" in some of the organisational literature of the 1970s.

It is generally accepted that there are benefits related to staff morale and work performance which are associated with organisational structures which reflect the diversity of view points and cultures associated with different disciplines, and which reflect the fact that academic/teaching professionals have a primary allegiance to the values of their own disciplines. At the same time, there are diseconomies associated with an institutional structure comprising a large number of separate organisational units, particularly where many of them are quite small. Problems of co-ordination and communication between units, and the costs in terms of administrative support, duplication of often under-utilised administrative or support resources, can be disproportionately large. Consequently, in times of funding constraints, improvements in cost-efficiency and in performance relative to resources expended can be sought through simplifying an institution's organisational structure. This may involve reducing the number of organisational units simply by amalgamation of small sections/departments/branches, or by reducing the number of levels in the organisational hierarchy (e.g., eliminating departments to combine them into Schools based on groupings of similar disciplines etc.). Alternatively, it may involve simplifying the internal management structures under which particular organisational units operate, reducing the complexity of hierarchies and reporting relationships.

If done well, such organisational restructuring can offer improvements in communication, co-ordination, and associated quality of performance, as well as associated improvements in resource utilisation and cost-efficiency. If done poorly, without sufficient regard to local needs and circumstances, it can lead to reductions in morale, quality of performance and overall efficiency. Thus, organisational restructuring should only be done after careful review and analysis, investigation of alternatives and their likely consequences.

Again, *institutional research* can play a critical role in providing the investigation and analysis needed to achieve a simpler, more effective organisational structure. Such a structure must be relevant to the needs of the institution, its staff and students, as well as appropriate to institutional goals, purposes and mission. Meeting these imperatives should lead to improved quality of performance. The range of data/analyses which can contribute to such a review exercise is quite diverse. Statistical data on staff and student numbers, academic and other programs, resource utilisation and costs, are fundamental inputs. So are surveys to elicit views of stakeholders (e.g., staff, students) on a variety of issues, as are comparative data/information from other similar institutions. Qualitative judgement and quantitative analysis need to be integrated within an overall framework which is appropriate to the particular focus of the review.

Again, it should be noted that simplifying organisational structures can often be implemented in combination with the streamlining of administrative procedures, and the improvement of communication and co-ordination across the institution.

Developing Collaborative Arrangements for Joint Programs and Shared Resource Use

The scale, scope and nature of particular programs or projects, and of their consequent requirements for expertise, facilities and other resources sometimes make it desirable (or even essential) that they be undertaken in collaboration with other organisations. The enhanced contribution of expertise, infrastructure and other resources made possible by collaboration often enables a higher quality of achievement. As well, collaboration offers potential for economies and cost-efficiencies through the shared use of facilities and other resources.

Consequently, in an environment which increasingly emphasises the quality of performance as well as accountability for the wise use of limited resources, such co-operative activities are increasingly common between tertiary education institutions (as well as between institutions and other organisations). Primary areas for such collaboration are in the development and offer

of courses/academic programs, the conduct of research and development projects, and various forms of service to the community.

Institutional research can often contribute information (various data/analyses) in relation to particular program proposals, their resource and infrastructure requirements, and the match between these needs and the capacities of the institution to meet them. This can be useful in identifying instances where collaboration is either essential or desirable in order to provide appropriate resources/infrastructure to successfully implement a program or to achieve a desired level of performance or quality. It can also help in the selection of suitable prospective partners for collaboration, by identifying and quantifying the additional contributions need.

Implementing More Effective Monitoring and Review Processes

Effective monitoring and review processes are essential to the successful implementation of institutional planning and to the long term success of all institutional management. This applies equally to both strategic and operational levels. On-going monitoring and review are particularly important for the management of quality, and especially for continuous quality improvement. This imperative is heightened when funding and resources are constrained, and it becomes crucial to achieve and maintain optimal performance and outcomes. It is in this vital area of monitoring and review that *institutional research* can perhaps play its most significant role in assisting the process of quality management.

Performance indicators are one important tool which can assist management in measuring and assessing the achievement of goals/objectives (i.e. the quality of performance and outcomes). Recent years have seen increased attention being given to the development and use of performance indicators within the tertiary education sector. In Australia, the Commonwealth Department of Employment, Education and Training (DEET) commissioned a major study into the development of performance indicators for higher education, resulting in a two volume report (Linke et al., 1991). More recently, DEET commissioned a project which has led to the identification of performance indicators to measure the achievement of equity goals by higher education institutions. The report and software package produced by this project have recently

been released (Martin, 1994). A number of individual institutions have also been investigating performance indicators, and several actively developing and implementing them. Such performance indicators are nearly always quantitative in their measurement, being based on a range of statistical data. In a majority of cases, they measure outputs or outcomes, either in the absolute sense or in the form of a ratio which may incorporate some element of efficiency (i.e., input/output). In other cases, they may measure processes rather than outcomes.

The topic of performance indicators is wide ranging and complex, and a comprehensive treatment is far beyond the scope of this paper. Some complex definitional and technical problems of data and measurement are involved, as are issues related to their interpretation and context, especially their application for comparative purposes. Despite these difficulties, performance indicators can often provide quite good information on the extent to which outcomes achieve intended goals. Thus, they can serve as useful indicators of the quality of performance in specific program areas or dimensions of activity. Suffice to say that the definition, development and trialing of indicators, the collection and compilation of data for their application, and the analysis and interpretation of the results which they produce, all form a major area of involvement for many practitioners of *institutional research*.

The diversity and range of performance indicators almost defies categorisation, although reports such as the DEET Performance Indicators Report (Linke et al., 1991) have provided useful classifications with respect to tertiary education activities. The following is a brief indicative listing of a selection of areas in which performance indicators are commonly used; this is intended merely to illustrate their wide range of possible applications.

- graduate outcomes
 - success in gaining employment
 - graduate satisfaction
- student outcomes
 - student retention/attrition
 - student learning success

- student satisfaction with teaching and programs
- student recruitment (process/outcomes)
 - students enrolled compared to targets
 - academic standards of students admitted
- research activity indicators
 - publications/software produced
 - research grants received
- staffing/resource indicators
 - student:staff ratios
 - staff turnover rates
 - rates of expenditure on various activities

It is important to acknowledge that quantitative performance indicators should be used in combination with additional qualitative information to provide a balanced context for their interpretation. This is particularly the case for programs and activities which are complex or multi-faceted; moreover, a range of indicators should be used to provide a better perspective across all dimensions of performance.

The above considerations make it highly desirable to also monitor and review performance in reflective, subjective terms as a counterbalance to statistical data analysis. Too heavy a reliance on purely quantitative measures of performance can easily lead to a mechanistic, technical approach to quality management. Nevertheless, *institutional research* can also inform such qualitative reviews and evaluations, particularly through the conduct of surveys to elicit feedback from stakeholders in the processes/activities under review.

THE USE OF *INSTITUTIONAL RESEARCH* TO ASSIST IN DOCUMENTING INSTITUTIONAL QUALITY FOR THE CQAHE QUALITY REVIEW

In Australia, the Committee for Quality Assurance in Higher Education (CQAHE) has the responsibility of undertaking a comprehensive program of review of the quality of processes and outcomes in Australian higher education institutions. Currently (April 1995), the final annual round of the three year Quality Review cycle is now commencing. In this quality review exercise, an institution submits a portfolio (plus appendices) which presents a documented case of the extent to which it achieves quality in both outcomes and processes. This case is then examined by a Review Team which visits the institution and holds discussions to ascertain the extent to which the outcomes and processes are achieved/successful, and to assess their quality. The Reports prepared by the Review Teams are considered by the full Committee which then prepares an overall report and recommendations to the Minister. These recommendations propose the distribution, amongst individual institutions, of a special allocation of funds reserved to reward demonstrated achievement of quality.

This paper makes no attempt to examine the CQAHE Quality Review process. Instead, it simply acknowledges that the process is consistent with the increasing attention being given by government (and the community in general) to achieving better quality of performance (i.e., outcomes), and to establishing a greater degree of public accountability to facilitate the more effective and efficient use of public funds. This reflects in turn the increasing emphasis on improving quality whilst working within an increasingly constrained funding environment.

It is relevant to note that a feature of the institutional portfolios submitted to the CQAHE in both the 1993 and 1994 rounds, has been their incorporation of various statistical data/analyses to demonstrate aspects of quality achieved in various institutional activities. These data were often presented as performance indicators, measuring outcomes. For the most part, they represented the results of *institutional research*. Some were relatively mechanistic presentations

of simple statistical management information; others were the more sophisticated findings of research studies - surveys and other investigations. Substantial proportions of most appendices to institutional portfolios comprised statistical compilations providing either comparative data or data on the level of achievement in specified dimensions of activity (whether outcome or process-oriented). The range and diversity of these data/analyses militates against their review in this paper. However, the salient point to be noted here is that the CQAHE exercise has shown the extent to which *institutional research* can facilitate the process of quality review.

CONCLUDING REMARKS

The CQAHE quality review program has served as a catalyst for many Australian institutions to invest increased effort and attention into the development of their capacity for *institutional research*, in order to enhance their ability to have relevant management information for the assessment of the quality of their institutional performance. This development reinforces and complements the parallel pressures faced by institutions to make better use of resources in a time of increasing funding constraints. The discussion and review offered in this paper has illustrated the diverse ways in which *institutional research* can contribute to effective quality management and planning, and by doing so, help to improve the performance of institutions which must operate within constrained resources.

More generally, the environment in which Australian tertiary education must operate bears close parallels to the situation found in New Zealand and many other countries. Thus, the potential for *institutional research* to make similar contributions to quality management in these countries is also quite significant.

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